

TABLE OF CONTENTS

	<u>PAGE</u>
Summary.....	1
1. An Exchange Carrier Should Be Permitted to Use QoR To Route Calls From Its Customers to Numbers in NXX's Assigned to That Carrier.....	2
2. QoR Will Save Customers Big Bucks.....	6
3. The Commission Should Remain Flexible Concerning The Number Portability Deployment Schedule.....	9
4. The Commission May Not Impose Rules Concerning Number Portability.....	10
Conclusion.....	11

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of

Telephone Number Portability

CC Docket No. 95-116

**Bell Atlantic's Reply in Support of Its
Petition for Clarification and Partial Reconsideration**

Summary

Repetition, even strident repetition, does not make illogical arguments persuasive.

And yet for all their vehemence, the opponents of QoR really have nothing logical to say about how they will be hurt if Bell Atlantic uses QoR. The use of QoR within a carrier's own network to route calls to NXX's assigned to that carrier is consistent with the performance standards adopted by the Commission, and Bell Atlantic urges the Commission to confirm that fact.

The main complaint of the opponents of QoR is that QoR "delays" the completion of certain calls. But the calls made by the customers of the QoR opponents will not be delayed at all — any delay will be on calls made by Bell Atlantic's customers. And the opponents' own customers cannot possibly be aware of any delay experienced on calls placed to them — it will be noticeable, if it is at all, only by Bell Atlantic's customers. In short, QoR might "degrade" Bell Atlantic's service to its own customers, making its competitors' service look better in comparison. In spite of these facts, the opponents of QoR claim that Bell Atlantic would be able, through the alchemy of advertising, to transform this degradation of its own service into marketing gold. This supposed fear is more than just illogical — it is too irrational for the Commission even to consider in deciding this issue.

In contrast to this irrational fear is the fact that no opponent seriously questions that QoR will save exchange carriers and their customers hundreds of millions of dollars. TCG predicts that “QoR can save precious funds” and that QoR “will have a substantial effect on implementation costs” for incumbents and new entrants alike.¹ The exact amount of the savings is difficult to predict because LRN and QoR have not been tested, but Bell Atlantic’s conservative estimate is that QoR would cut the cost of upgrading its network to provide portability by more than 26 percent.

The Commission should also reconsider its decision to prescribe rules for recovering the costs of interim number portability. These service arrangements are jurisdictionally intrastate, and the Commission lacks jurisdiction over them. Section 251(e)(2) did not change this. As the Senate Report indicates, “The method of providing interim number portability and the amount of compensation, if any, for providing such service is subject to the negotiated interconnection agreement,”² not for federal regulations.

1. An Exchange Carrier Should Be Permitted To Use QoR To Route Calls From Its Customers to Numbers in NXX’s Assigned to That Carrier.

The opponents of QoR continue to base their case on illogical arguments and factual inaccuracies.

The Illogical. As indicated above, the opponents all claim to fear that incumbent carriers will be able to make marketing hay out of the fact that some calls made by their own customers might be delayed for a fraction of a second.³ There is no reason to believe — and

¹ TCG at 2.

² S. Rep. No. 230, 104th Cong., 1st Sess. at 51 (1995).

³ AT&T at 10; MCI at 10; Sprint at 4-5; Time Warner at 5.

certainly no evidence cited by the opponents of QoR — that consumers would care at all about such a delay. However, if the QoR opponents are correct that this delay does matter, then logic suggests that carriers that use QoR would not advertise the fact that they have intentionally introduced this delay into their own service. If there is a marketing opportunity here at all, logic suggests it is an opportunity for the carrier that does *not* use QoR, not for the one that does.⁴

ALTS sees QoR as an effort by incumbent carriers “to strangle LRN in its cradle.”⁵ The image is as senseless as it is colorful. QoR would not displace LRN; it would supplement it. Even where a carrier used QoR, LRN would be the basic call routing system for providing number portability.

ALTS also fears that the voluntary QoR proposed by Bell Atlantic and others would become mandatory, as it “could still be foisted upon interconnectors” by the incumbents.⁶ Bell Atlantic does not understand how this could come about. However, if ALTS is truly concerned about this possibility, Bell Atlantic would support ALTS’ request that the Commission issue an order prohibiting the members of ALTS from using QoR.

The Inaccurate. AT&T claims that QoR results in delay “for customers that switch carriers, delay not experienced by customers who do not switch carriers.”⁷ Even the other

⁴ MCI warns that “Pacific [will] be able to state — truthfully — that calls on its network will be completed faster than calls destined for the networks of its competitors.” MCI at 10. MCI, however, would be able to state, also truthfully, that Pacific completes its customers’ calls slower than MCI does. Although neither slogan is as memorable as “Where’s the beef?” or “Have you had your break today?,” MCI should be at least as successful as Pacific in this advertising battle.

⁵ ALTS at 3.

⁶ ALTS at 2-3.

⁷ AT&T at 10.

opponents of QoR do not resort to this sort of misrepresentation, as Sprint acknowledges that “it is true that it is the ILEC’s customer (the calling party) who experiences the dialing delay.”⁸

AT&T also condemns QoR because “QOR requires that competing carriers to [sic] rely on ILEC switches and signaling links to perform number portability functions” because “QOR requires that these networks be intimately involved in performing number portability functions.”⁹ Of course, with LRN itself, incumbent carriers’ networks, in particular their “switches and signaling links,” will be used to provide number portability. If QoR fails the Commission’s test on account of this, so must LRN.

MCI concocts “significant network inefficiencies” that it blames on QoR. For example, it claims that “the ported call under QoR may need to be routed to and switched at an additional tandem switch if the new entrant’s destination switch subtends a different ILEC tandem.”¹⁰ The exact same routing and switching would take place using LRN without QoR, and there is no added inefficiency. MCI also says that “network provisioning would be more complex” because each switch would have to be individually configured. Again, the same is true for LRN without QoR.

MCI’s third alleged inefficiency is really an efficient use of the network. MCI notes that with QoR the originating switch begins to set up the call to the switch to which the NXX is assigned before receiving confirmation that the number is in that switch.¹¹ This, of course, is the way calls are handled today, and it is not viewed by existing carriers as an inefficiency. Whatever

⁸ Sprint at 4.

⁹ AT&T at 15 & n.45 (emphasis in the original).

¹⁰ MCI at 12.

¹¹ MCI at 12.

small inefficiency might result when some calls must be delivered instead to another carrier's switch is far outweighed by the savings that are produced by not having to make unnecessary database look-ups on all the calls to numbers that have not been ported. More important, this inefficiency is suffered by the carrier that voluntarily uses QoR, not by its competitors.

Like MCI, Time Warner invents defects that QoR does not have. It says that QoR could produce "complex queries" to the switch to which the NXX is assigned if "the query must cross one or more tandem switches."¹² These "queries," of course, are SS7 messages that do not go over the voice network, or through any tandem switches, at all.¹³

Sprint claims that the "incremental time added by QoR" could cause an exchange carrier's operator switch to "time out" and drop calls that involve database look-ups unrelated to number portability.¹⁴ This will not happen, because operator switches do not work that way. The generic requirements for such switches require that these switches have no timer running during database look-ups, and, therefore, the call cannot time out during those look-ups.¹⁵

Sprint also says that QoR will subject its traffic to "greater expense than the ILECs' own traffic," making it more difficult for Sprint to compete.¹⁶ But the record shows that QoR will *reduce* the cost of number portability. While there has been some debate over the amount of that savings, no party has suggested that QoR will make portability more expensive. Even if it did, the

¹² Time Warner at 4.

¹³ ALTS also seems to believe that QoR queries go through the voice network.
ALTS at 4.

¹⁴ Sprint at 5.

¹⁵ Generic Requirements for Call Control Using Integrated Services Digital Network User Part (ISDNUP) § 3.1.1.2, GR-317-CORE, Issue 1, Revision 1, Sept. 1994.

¹⁶ Sprint at 2.

costs would be borne by all telecommunications carriers in a competitively neutral manner,¹⁷ and it would not make it more difficult for Sprint to compete.

Finally, Time Warner warns that the industry knows little about the effects of QoR on call set-up and network reliability and that the Commission should, therefore, not permit its use.¹⁸ The state of the industry's understanding of QoR is precisely the same as its understanding of LRN, and that fact did not stop the Commission from endorsing LRN.

2. QoR Will Save Consumers Big Bucks.

LRN with QoR is less expensive than LRN without QoR. No carrier that has considered using QoR in its network suggests that QoR will not save money. Because consumers will ultimately pay for number portability, QoR will save consumers money. There is really no argument on this point.

The only debate is over how big the savings will be. ALTS tries to minimize the savings as being "perhaps 2¢-3¢ per line."¹⁹ But this couple of pennies for each of the more than 166,000,000 lines in the country, over the five year recovery period, adds up to a savings of hundreds of millions of dollars.²⁰ This is real money to Bell Atlantic even if it is not to ALTS.

AT&T is critical of Bell Atlantic and others for what it characterizes as the "moving target" of estimated QoR savings.²¹ AT&T Lucent is one of the causes of all this motion, in that

¹⁷ 47 U.S.C. § 251(e)(2).

¹⁸ Time Warner at 3.

¹⁹ ALTS at 5.

²⁰ Nearly \$300 million at 3 cents per line per month.

²¹ AT&T at 17.

during the past two months, Lucent has given Bell Atlantic six different versions of the software tool Bell Atlantic needs to determine the effect of LRN on Lucent's 5E switches.

AT&T's carping to one side, there are good reasons for the uncertainty about the amount of the savings, including the fact that neither LRN or QoR exists yet. Number portability requires database look-ups. At some point, the number of look-ups will be beyond the capacity of existing switch processors, and additional processors will be required. There is no disagreement over these facts. However, because LRN does not exist, the engineers have not been able to test it in all the different types of switches that are in use today to see what its real effect will be and to calculate how many new processors will be necessary. Reasonable engineers may make different assumptions on such points when they are unable to get hard answers through real tests.²²

Another cause of the uncertainty about the savings produced by QoR is the uncertainty of supplier prices. Over the course of the months that the industry has been considering LRN and QoR, prices for these capabilities have changed. Also during this period, manufacturers have changed the prices of hardware components that telephone companies will need to implement portability. For example, shortly after the release of the Commission's Order in July, Lucent raised by 18 percent the "planning price" of the 5E processor upgrade that will often be required in connection with number portability. (It should also be noted that Lucent will sell fewer of these now higher priced items if the Commission permits carriers to use QoR.)

In sum, it is not surprising that different companies, making their estimates at different times, have developed different projected savings for QoR.

²² Other assumptions on which the cost comparisons depend include the number of NXX's with ported numbers, number of calls to ported numbers and additional signaling units per call.

Based upon the latest information available to Bell Atlantic, we continue to believe that QoR can reduce the cost of number portability by more than 26 percent. As set out in Attachment A, we believe that it would cost Bell Atlantic more than \$256 million to ready its network to provide portability.²³ The largest component of this cost is for additional hardware, in particular database hardware, additional switch processors and the links between them, together estimated to cost \$143 million.

By reducing the number of database look-ups, QoR would reduce these hardware costs. The precise amount of that reduction depends in part on how many look-ups will still be required. If database look-ups are required on ten percent of the calls, Bell Atlantic would need to spend about \$49 million instead of \$143 million for these hardware additions, and its cost for portability would be approximately \$188 million rather than \$256 million, a savings of more than 26 percent. Even if look-ups were required on 25 percent of the calls, QoR would cut the cost of portability by almost 22 percent, or \$56 million.²⁴

Bell Atlantic believes that the savings will be much closer to the 26 percent level that would be generated by database look-ups on ten percent of the calls. At first blush, this ten percent figure might appear low, when compared, for example, to AT&T's predictions that it will take 30 percent of the local business over the next few years. However, look-ups on ten percent of the calls does *not* mean that only ten percent of the customers have switched to another local service provider. Many new local service providers will compete by reselling Bell Atlantic service

²³ This does not include shared industry costs, such as those for the SMS.

²⁴ AT&T is wrong when it says that these cost comparisons do not include the cost of QoR software. AT&T at 17. It is also wrong when it claims that QoR doubles the software costs of portability (*id.* at 18), as QoR software costs about half of what LRN costs.

and will not have their own switches. In these cases, the customer's telephone number remains where it has always been, in the Bell Atlantic switch. With QoR, there would no database look-up on calls to these numbers, even though the customer has changed her local carrier.

**3. The Commission Should Remain Flexible Concerning
The Number Portability Deployment Schedule.**

There can be no disagreement that the schedule established by the Commission is extremely ambitious. It ordered deployment of number portability to begin in little more than a year and to be complete in the 100 largest MSA's a little more than a year thereafter. In contrast, the Bell companies had more than two years to develop equal access and were required to deploy it in end offices serving only a third of their lines in a comparable period.

As the Commission recognizes, exchange carriers must rely on others, especially equipment manufacturers, to meet this schedule. NYNEX has already suggested that the efforts of one manufacturer are inadequate and jeopardize NYNEX's ability to complete all the work that must be done on time.²⁵ Bell Atlantic previously noted AT&T Lucent had yet to commit to provide QoR on the same schedule as other switch manufacturers; Lucent has now advised Bell Atlantic that it will not provide QoR in time for Bell Atlantic to use that capability in the first round of MSA's late next year. Bell Atlantic's inability to use QoR on Lucent switches in the Philadelphia MSA will significantly complicate the job of introducing number portability throughout that area by the end of 1997. Additional time might be required to complete the task.²⁶

²⁵ NYNEX at 9-11.

²⁶ Other carriers have suggested a flexibility of a different sort, namely deploying number portability only where there is a market need for it and deferring it elsewhere until there is a market need. As reported by the member of the Illinois portability workshop, there have been requests for portability in only half of the exchanges in the Chicago MSA. Letter from James K. Smith, Ameritech, to William F. Caton, Attachment, dated September 30, 1996.

LRN is still untested, and, under the Commission's schedule, the results of the first real tests will not be available until next September. These tests or other industry activities might require the Commission to quickly alter the current schedule. Bell Atlantic urges the Commission to remain flexible in reacting to developments over the coming months and to be willing to adjust the schedule as required.

**4. The Commission May Not Impose Rules
Concerning Interim Number Portability.**

The parties supporting the Commission's preemption of State interim number portability cost recovery plans praise the Commission's plan as fair and competitively neutral. Whatever the merits of that plan, however, the problem with it is the Commission lacks the authority to impose it.

Local number portability arrangements are jurisdictionally intrastate. While Congress in section 251(e)(2) gave the Commission the authority over long-term portability cost recovery, "[t]he method of providing interim number portability and the amount of compensation, if any, for providing such service is subject to the negotiated interconnection agreement."²⁷

This jurisdictional division is apparent from the words of section 251(e)(2) itself, which gives the Commission jurisdiction only over the costs of "establishing" portability arrangements.²⁸ Since interim arrangements are just adaptations of existing service, there is nothing to "establish," and no federal jurisdiction.

²⁷ S. Rep. No. 230, 104th Cong., 1st Sess. at 51 (1995). Sprint is, therefore, plainly wrong when it claims that interim arrangements cannot be left to carrier negotiations. Sprint at 10.

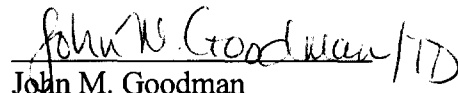
²⁸ When AT&T quotes this section, it inexplicably omits this word. AT&T at 22.

It makes sense that Congress differentiated between interim and long-term portability arrangements in this way — because these are very different services. Unlike interim portability, long-term portability involves an industry-wide effort and significant shared facilities, such as service management systems and network portability databases. Unlike interim portability, long-term portability requires switch upgrades, infrastructure additions, and database and systems creation before a single number can be ported. While interim portability is comparatively cheap, long-term portability costs billions. These differences are the reasons Congress required the Commission to devise a special way to pay for long-term portability, and not for interim portability.

Conclusion

The Commission should confirm that Bell Atlantic may use QoR within its own network to process calls to telephone numbers in NXX's assigned to Bell Atlantic. It should also reconsider its decision to impose rules on the States governing cost recovery mechanisms for existing number portability arrangements.

Respectfully submitted,


John M. Goodman
Attorney for Bell Atlantic

Edward D. Young, III
Of Counsel

1133 20th Street, N.W.
Washington, D.C. 20036
(202) 392-1497

Dated: October 10, 1996

ATTACHMENT A

BELL ATLANTIC LNP COST ANALYSIS - 1997 THRU 2001

NO QoR

	1997	1998	1999	2000	2001	TOTALS
ISCP COSTS	\$36,000,000	\$27,000,000	\$3,000,000	\$6,000,000	\$0	\$72,000,000
LINK COSTS	\$4,800,630	\$3,671,070	\$395,346	\$564,780	\$451,824	\$9,883,650
SSP HARDWARE	\$29,877,900	\$21,568,300	\$2,199,600	\$4,215,900	\$3,238,300	\$61,100,000
SMS HARDWARE	\$500,000	\$500,000				\$1,000,000
OSS HARDWARE	\$2,320,245	\$1,676,873	\$171,110	\$328,530	\$253,242	\$4,750,000
TOTAL LNP HW	\$73,498,775	\$54,416,243	\$5,766,056	\$11,109,210	\$3,943,366	\$148,733,650
LRN SOFTWARE	\$26,002,575	\$18,770,775	\$1,914,300	\$3,669,075	\$2,818,275	\$53,175,000
QoR SOFTWARE	\$0	\$0	\$0	\$0	\$0	\$0
OSS SOFTWARE	\$23,202,450	\$16,768,732	\$1,711,095	\$3,285,303	\$2,532,421	\$47,500,001
FACILITY EXPENSE	\$417,520	\$319,280	\$34,384	\$49,120	\$39,296	\$859,600
LOCAL SMS SFTWR	\$2,500,000					\$2,500,000
ENG & TRANSLATIONS	\$1,695,000	\$1,225,000	\$125,000	\$240,000	\$185,000	\$3,470,000
TOTAL LNP EXP	\$53,817,545	\$37,083,787	\$3,784,779	\$7,243,498	\$5,574,992	\$107,504,601
CAPITAL & EXPENSE	\$127,316,320	\$91,500,030	\$9,550,835	\$18,352,708	\$9,518,358	\$256,238,251

QoR DEPLOYED -- LOOK-UPS ON 10 PERCENT OF CALLS

	1997	1998	1999	2000	2001	TOTALS
ISCP COSTS	\$9,000,000	\$3,000,000	\$0	\$3,000,000	\$0	\$15,000,000
LINK COSTS	\$621,258	\$508,302	\$56,478	\$112,956	\$56,478	\$1,355,472
SSP HARDWARE	\$15,745,800	\$11,366,600	\$1,159,200	\$2,221,800	\$1,706,600	\$32,200,000
SMS HARDWARE	\$500,000	\$500,000				\$1,000,000
OSS HARDWARE	\$2,320,245	\$1,676,873	\$171,110	\$328,530	\$253,242	\$4,750,000
TOTAL LNP HW	\$28,187,303	\$17,051,775	\$1,386,788	\$5,663,286	\$2,016,320	\$54,305,472
LRN SOFTWARE	\$26,002,575	\$18,770,775	\$1,914,300	\$3,669,075	\$2,818,275	\$53,175,000
QoR SOFTWARE	\$13,388,820	\$9,665,140	\$985,680	\$1,889,220	\$1,451,140	\$27,380,000
OSS SOFTWARE	\$23,202,450	\$16,768,732	\$1,711,095	\$3,285,303	\$2,532,421	\$47,500,001
FACILITY EXPENSE	\$54,032	\$44,208	\$4,912	\$9,824	\$4,912	\$117,888
LOCAL SMS SFTWR	\$2,500,000					\$2,500,000
ENG & TRANSLATIONS	\$1,695,000	\$1,225,000	\$125,000	\$240,000	\$185,000	\$3,470,000
TOTAL LNP SW	\$66,842,877	\$46,473,855	\$4,740,987	\$9,093,422	\$6,991,748	\$134,142,889
CAPITAL & EXPENSE	\$95,030,180	\$63,525,630	\$6,127,775	\$14,756,708	\$9,008,068	\$188,448,361

DOLLAR SAVINGS AS COMPARED WITH NO QoR	\$67,789,890
PERCENT SAVINGS AS COMPARED WITH NO QoR	26.4%

BELL ATLANTIC LNP COST ANALYSIS - 1997 THRU 2001

QoR DEPLOYED -- LOOK-UPS ON 25 PERCENT OF CALLS

	1997	1998	1999	2000	2001	TOTALS
ISCP COSTS	\$9,000,000	\$9,000,000	\$3,000,000	\$3,000,000	\$0	\$24,000,000
LINK COSTS	\$1,581,384	\$1,186,038	\$169,434	\$169,434	\$169,434	\$3,275,724
SSP HARDWARE	\$15,990,300	\$11,543,100	\$1,177,200	\$2,256,300	\$1,733,100	\$32,700,000
SMS HARDWARE	\$500,000	\$500,000				\$1,000,000
OSS HARDWARE	\$2,320,245	\$1,676,873	\$171,110	\$328,530	\$253,242	\$4,750,000
TOTAL LNP HW	\$29,391,929	\$23,906,011	\$4,517,744	\$5,754,264	\$2,155,776	\$65,725,724
LRN SOFTWARE	\$26,002,575	\$18,770,775	\$1,914,300	\$3,669,075	\$2,818,275	\$53,175,000
QoR SOFTWARE	\$13,388,820	\$9,665,140	\$985,680	\$1,889,220	\$1,451,140	\$27,380,000
OSS SOFTWARE	\$23,202,450	\$16,768,732	\$1,711,095	\$3,285,303	\$2,532,421	\$47,500,001
FACILITY EXPENSE	\$137,536	\$103,152	\$14,736	\$14,736	\$14,736	\$284,896
LOCAL SMS SFTWR	\$2,500,000					\$2,500,000
ENG & TRANSLATIONS	\$1,695,000	\$1,225,000	\$125,000	\$240,000	\$185,000	\$3,470,000
TOTAL LNP SW	\$66,926,381	\$46,532,799	\$4,750,811	\$9,098,334	\$7,001,572	\$134,309,897
CAPITAL & EXPENSE	\$96,318,310	\$70,438,810	\$9,268,555	\$14,852,598	\$9,157,348	\$200,035,621
DOLLAR SAVINGS AS COMPARED WITH NO QoR						\$56,202,630
PERCENT SAVINGS AS COMPARED WITH NO QoR						21.9%

Categories of Number Portability Costs

ISCP costs: Databases that will process number portability queries and return a response containing the Location Routing Number needed to route the call and signaling links that connect those databases to signal transfer points.

Link costs: SS7 signaling links needed to transport number portability queries and responses between end offices and signal transfer points.

Signal Switching Point (SSP) hardware: Processor related equipment required to keep switches operating within vendor recommended parameters. The hardware varies by switch type; for the 5E, it includes Direct Link Nodes, Communication Modules II and 3B21 processors. For the DMS100, it reflects costs to upgrade the central processor. This category also includes the cost of advancement of 1A switch replacements that are made necessary by the Commission's number portability implementation schedule.

SMS hardware: The local service management system that will update records in the serving ISCP and interface with the regional service management system.

OSS hardware: Upgrades to service negotiation, provisioning and assurance systems.

LRN and QoR software: Right-to-use fees for Location Routing Number and Query on Release software.

OSS software: Operating and application related software for operations support systems changes.

Facility expense: Provisioning and engineering costs associated with link installations.

Local SMS software: Cost to develop the software for the local SMS.

Engineering and translations costs: Labor to perform the switch translations.

QoR Cost Savings Study Assumptions

All NXX's opened for portability when portability introduced in a geographic area.

Portability introduced throughout the 100 top MSA's within Bell Atlantic territory by year end 1998. Portability introduced throughout the rest of Bell Atlantic territory by year end 2001.

Call rates: 1.7 calls per ported line during the busy hour.

Incremental signaling per call: The additional signaling units generated by the TCAP query and response associated with an LNP query assumed to be 100 octets for the query and 100 octets for the response.

Serving arrangement: The network architecture consisting of AIN databases, with 21 ISCP pairs operating at 450 transactions per second and eventually growing to approximately 100 transactions per second.

The engineering assumptions were that A-links will be engineered at .4 erlang, .8 for the pair, and operate at 56,000 bits per second.

Annual access line growth was assumed to be approximately 2 percent per year.

Cost of money of 11.9% to advance switch replacements.

Data extrapolated from samples of 21 5E offices (in the Baltimore LATA) and 23 DMS100 offices (in Pennsylvania) to calculate region-wide numbers.

Upgrade any switch that exceeds vendor recommended thresholds of exhaust with the addition of LNP. Switches that are currently scheduled to be upgraded in 1996 due normal component exhaust were excluded from this analysis.

QoR Cost Savings Study Methodology


The number of busy hour call originations was run through a LOTUS 123 based spreadsheet model that is used to estimate the signaling load on signaling nodes (STP's, ISCP's and links) attributable to a single service or mix of services. The model accepts input in the form of busy hour activations, engineering rules and serving arrangement. Its output includes loads on the STP's, ISCP's and links. For links, it is incremental thousands of octets per second; for ISCP's it is the number of transactions per second; for STP's it is increased Global Title Translations. The program also produces the average increase in link utilization, link delay and queuing statistics.

Output from this model was used to estimate incremental network requirements based on these assumptions. After these requirements were identified, they were priced out using information received from equipment manufacturers, recent data associated with similar jobs and internal Bell Atlantic estimates. Bell Atlantic data were used to price ISCP's, links, SMS hardware, OSS hardware, facility expense, and engineering and translations. Supplier data was used to price out LRN software, QoR software, and SSP hardware.

SSP hardware requirements have been estimated with the assistance of LUCENT and NORTEL and using their recently developed switch capacity analysis models.

CERTIFICATE OF SERVICE

I hereby certify that on this 10th day of October, 1996 a copy of the foregoing "Bell Atlantic's Reply in Support of Its Petition for Clarification and Partial Reconsideration" was sent via first class mail, postage prepaid, to the parties on the attached list.


Tracey DeVaux

* Via hand delivery.

DAVID A IRWIN
ATTORNEY FOR
ITCS INC
IRWIN CAMPBELL & TANNENWALD
1730 RHODE ISLAND AVENUE NW
WASHINGTON DC 20036

DAVID A BECKER ESQ
ASSISTANT ATTORNEY GENERAL
COLORADO PUBLIC UTILITIES
COMMISSION
1580 LOGAN STREET OFFICE LEVEL 2
DENVER CO 80203

MICHAEL J SHORTLEY III
ATTORNEY FOR
FRONTIER CORPORATION
180 SOUTH CLINTON AVENUE
ROCHESTER NY 14646

ROY L MORRIS
DIRECTOR
FRONTIER CORPORATION
1990 M STREET NW SUITE 500
WASHINGTON DC 20036

TIMOTHY GRAHAM
LEO I GEORGE
JOSEPH M SANDRI JR
WINSTAR COMMUNICATIONS INC
1146 19TH STREET NW
WASHINGTON DC 20036

VIRGINIA J TAYLOR
ATTORNEY FOR
CALIFORNIA DEPARTMENT OF
CONSUMER AFFAIRS
400 R STREET SUITE 3090
SACRAMENTO CA 95814-6200

CAMPBELL L AYLING
ATTORNEY FOR
THE NYNEX TELEPHONE COMPANIES
1111 WESTCHESTER AVENUE
WHITE PLAINS NY 10604

SUSAN DROMBETTA
MANAGER RATES AND TARIFFS
SCHERERS COMMUNICATIONS GROUP
INC
575 SCHERES COURT
WORTHINGTON OH 43085

ANTHONY MARQUEZ ESQ
FIRST ASSISTANT ATTORNEY GENERAL
COLORADO PUBLIC UTILITIES
COMMISSION
OFFICE LEVEL 2
580 LOGAN STREET
DENVER CO 80203

THORVALD A NELSON
COLORADO OFFICE OF CONSUMER
COUNSEL
1580 LOGAN STREET SUITE 610
DENVER CO 80203

DAVE BAKER
CHAIRMAN
GEORGIA PUBLIC SERVICE COMMISSION
244 WASHINGTON STREET SW
ATLANTA GA 30334-5701

MARY W MARKS
ATTORNEY FOR
SOUTHWESTERN BELL TELEPHONE
COMPANY
ONE BELL CENTER ROOM 3558
ST LOUIS MO 63101

MARK J GOLDEN
VICE PRESIDENT OF INDUSTRY AFFAIRS
PERSONAL COMMUNICATIONS
INDUSTRY ASSOCIATION
500 MONTGOMERY STREET SUITE 700
ALEXANDRIA VA 22314

CARL W. NORTHROP
E ASHTON JOHNSTON
ATTORNEYS FOR
AIRTOUCH PAGING
ARCH COMMUNICATIONS GROUP
PAUL HASTINGS JANOFKY & WALKER
10TH FLOOR
1299 PENNSYLVANIA AVENUE NW
WASHINGTON DC 20004-2400

MARLIN D ARD
NANCY C WOOLF
PACIFIC BELL
ROOM 1523
140 NEW MONTGOMERY STREET
SAN FRANCISCO CA 94105

R MICHAEL SENKOWSKI
JEFFREY S LINDER
ATTORNEYS FOR
PACIFIC BELL
WILEY REIN & FIELDING
1776 K STREET NW
WASHINGTON DC 20006

JAMES R HOBSON
ATTORNEY FOR
NATIONAL EMERGENCY NUMBER
ASSOCIATION
DONELAN CLEARY WOOD & MASER PC
1100 NEW YORK AVENUE NW SUITE 750
WASHINGTON DC 20005-3934

JEFFREY S LINDER
ATTORNEY FOR
GTE SERVICE CORPORATION
WILEY REIN & FIELDING
1776 K STREET NW SUITE 1100
WASHINGTON DC 20006

GENE P BELARDI
VICE PRESIDENT
MOBIL MEDIA COMMUNICATIONS INC
101 WILSON BOULEVARD SUITE 935
ARLINGTON VA 22201

WERNER K HARTENBERGER
J G HARRINGTON
LAURA H PHILLIPS
ATTORNEYS FOR COX ENTERPRISES INC
DOW LOHNES & ALBERTSON
SUITE 800
1200 NEW HAMPSHIRE AVENUE NW
WASHINGTON DC 20036

JERE W GLOVER
CHIEF COUNSEL
OFFICE OF ADVOCACY
UNITED STATES SMALL BUSINESS
ADMINISTRATION
409 THIRD STREET SW SUITE 7800
WASHINGTON DC 20416

BARRY PINELES
ASSISTANT CHIEF COUNSEL
UNITED STATES SMALL BUSINESS
ADMINISTRATION
409 THIRD STREET SW SUITE 7800
WASHINGTON DC 20416

CYNTHIA B MILLER
ASSOCIATE GENERAL COUNSEL
FLORIDA PUBLIC SERVICE COMMISSION
ROOM 301 GERALD L GUNTER BUILDING
2540 SHUMARD OAK BOULEVARD
TALLAHASSEE FL 32399-0850

WILLIAM B BARFIELD
JIM O LLEWELLYN
ATTORNEYS FOR BELLSOUTH
CORPORATION
SUITE 1800
1155 PEACHTREE STREET NE
ATLANTA GA 30309-3610

M ROBERT SUTHERLAND
THEODORE R KINGSLEY
ATTORNEYS FOR
BELLSOUTH TELECOMMUNICATIONS INC
4300 SOUTHERN BELL CENTER
675 WEST PEACHTREE STREET
ATLANTA GA 30375

GREGORY M CASEY
SENIOR VICE PRESIDENT
VICTORIA A SCHLESINGER
REGULATORY ATTORNEY
TELEMATION INTERNATIONAL INC
6707 DEMOCRACY BOULEVARD
BETHESDA MD 20817

THOMAS E TAYLOR
CHRISTOPHER J WILSON
ATTORNEYS FOR CINCINNATI BELL
TELEPHONE CO
2500 PNC CENTER
201 EAST FIFTH STREET
CINCINNATI OH 45202

ROBERT M LYNCH
MARY W MARKS
J PAUL WALTERS JR
ATTORNEYS FOR SBC COMMUNICATIONS
INC
175 E HOUSTON ROOM 1262
SAN ANTONIO TX 78205

PAUL RODGERS
CHARLES D GRAY
JAMES BRADFORD RAMSAY
ATTORNEYS FOR
NATIONAL ASSN OF REGULATORY
UTILITY COMMISSIONERS
POST OFFICE BOX 684
1102 ICC BUILDING
WASHINGTON DC 20044

DAN L POOLE
JEFFREY S BORK
ATTORNEYS FOR US WEST INC
1020 19TH STREET NW SUITE 700
WASHINGTON DC 20036

ROBERT M WIENSKI
ITN BUSINESS DEVELOPMENT
SAM LAMARTINA
ITN LEGAL & REGULATORY AFFAIRS
8500 W 110TH STREET SUITE 600
OVERLAND PARK KS 66210

RICHARD A MUSCAT
ASSISTANT ATTORNEY GENERAL
CONSUMER PROTECTION DIVISION
PUBLIC AGENCY REPRESENTATION
SECTION
PO BOX 12548 CAPITOL STATION
AUSTIN TX 78711-2548

MARGOT SMILEY HUMPHREY
ATTORNEY FOR TDS
TELECOMMUNICATIONS CORP
KOTEEN & NAFTALIN
1150 CONNECTICUT AVE NW SUITE 1000
WASHINGTON DC 20036

MAUREEN O HELMER
GENERAL COUNSEL
NEW YORK STATE DEPARTMENT OF
PUBLIC SERVICE
THREE EMPIRE STATE PLAZA
ALBANY NY 12223

JUDITH ST LEDGER-ROTY
JOHN W HUNTER
ATTORNEYS FOR PAGING NETWORK INC
REED SMITH SHAW & MCCLAY
SUITE 1100 EAST TOWER
ONE FRANKLIN SQUARE
WASHINGTON DC 20005

CHARLES H HELEIN
GENERAL COUNSEL
ATTORNEY FOR AMERICA'S CARRIERS
TELECOMMUNICATION ASSOCIATION
HELEIN & ASSOCIATES PC
8180 GREENSBORO DRIVE SUITE 700
MCLEAN VA 22102

CATHERINE R SLOAN
RICHARD L FRUCHTERMAN
RICHARD S WHITT
ATTORNEYS FOR WORLDCOM INC
D B A LDDS WORLDCOM
1120 CONNECTICUT AVE NW SUITE 400
WASHINGTON DC 20036

MARK STACHIW
AIRTOUCH PAGING
THREE FOREST PLAZA
12221 MERIT DRIVE SUITE 800
DALLAS TX 75251

CARL W NORTHROP
BRYAN CAVE LLP
ATTORNEYS FOR AIRTOUCH PAGING
ARCH COMMUNICATIONS GROUP
700 THIRTEENTH STREET NW SUITE 700
WASHINGTON DC 20005

EMILY C HEWITT
VINCENT L CRIVELLA
MICHAEL J ETTNER
JODY B BURTON
ATTORNEYS FOR
GENERAL SERVICES ADMINISTRATION
18TH & F STREETS NW ROOM 4002
WASHINGTON DC 20405

PETER ARTH JR
EDWARD W O'NEILL
ELLEN S LEVIN
ATTORNEYS FOR THE PEOPLE OF THE
STATE OF CALIFORNIA AND THE PUBLIC
UTILITIES COMMISSION OF THE STATE OF
CALIFORNIA
505 VAN NESS AVENUE
SAN FRANCISCO CA 94102

GREGORY M CASEY
SENIOR VICE PRESIDENT
VICTORIA A SCHLESINGER
ATTORNEY FOR
TELEMATION INTERNATIONAL INC
6707 DEMOCRACY BOULEVARD
BETHESDA MD 20817

MICHAEL F ALTSCHUL
VP AND GENERAL COUNSEL
RANDALL S COLEMAN
VP REGULATORY POLICY & LAW
CELLULAR TELECOMMUNICATIONS
INDUSTRY ASSN
1250 CONNECTICUT AVE NW SUITE 200
WASHINGTON DC 20036

EDWIN N LAVERGNE
DARREN L NUNN
ATTORNEY FOR INTERACTIVE SERVICES
ASSOCIATION
INSBURG FELDMAN AND BRESS
HARTERED
250 CONNECTICUT AVENUE NW
WASHINGTON DC 20036

DANNY E ADAMS
STEVEN A AUGUSTINO
ATTORNEYS FOR THE COMPETITIVE
TELECOMMUNICATIONS ASSOCIATION
TLEY REIN & FIELDING
76 K STREET NW
WASHINGTON DC 20036

ROGER W STEINER
ASSISTANT GENERAL COUNSEL
ATTORNEY FOR THE
MISSOURI PUBLIC SERVICE COMMISSION
PO BOX 360
JEFFERSON CITY MO 65102

ANN E HENKENER
ASSISTANT ATTORNEY GENERAL
PUBLIC UTILITIES SECTION
PUBLIC UTILITIES COMMISSION OF OHIO
180 EAST BROAD STREET
COLUMBUS OH 43266

BRENDA K PENNINGTON
STAFF COUNSEL
CELLULAR TELECOMMUNICATIONS
INDUSTRY ASSN
1250 CONNECTICUT AVE NW SUITE 200
WASHINGTON DC 20036

GENEVIEVE MORELLI
VICE PRESIDENT AND GENERAL
COUNSEL
THE COMPETITIVE
TELECOMMUNICATIONS ASSN
1140 CONNECTICUT AVE NW SUITE 220
WASHINGTON DC 20036

RICHARD J METZGER
GENERAL COUNSEL
ASSOCIATION FOR LOCAL
TELECOMMUNICATIONS SERVICES
1200 19TH STREET NW SUITE 560
WASHINGTON DC 20036